ADDITIONAL NOTES ON THE ERIOCAULACEAE. XXXV

Harold N. Moldenke

ERIOCAULON DECANGULARE var. LATIFOLIUM Chapm.

Additional & emended bibliography: Moldenke, Phytologia 1: 316, 349, 350, 356, & 360 (1939) and 19: 332—333. 1970.

ERIOCAULON DECANGULARE var. MINOR Moldenke

Additional bibliography: Moldenke, Phytologia 19: 332, 333, 460, & 461. 1970.

ERIOCAULON DECANGULARE f. PARVICEPS Moldenke

Additional bibliography: Moldenke, Phytologia 20: 9—10, 22, & 349. 1970.

Recent collectors describe this plant as "infrequent in open pinewoods, growing to 6 dm. tall. It has also been found on savannas, the inflorescence-heads described as white, flowering and fruiting in June and November. Cory reports the common name of "pipewort" for it, this being a name applied generally to all members of the family.

Additional citations: TEXAS: Hardin Co.: Correll & Wasshausen 27567 (Mi); Cory 50789 (Mi).

ERIOCAULON DECEMFLORUM Maxim.

Additional bibliography: Moldenke, Phytologia 3: 143 & 144. 1949; Koyama in Ohwi, Fl. Jap. 266. 1965; Moldenke, Phytologia 19: 333—334. 1970.

Koyama (1965) records "ko-inu-no-hige" as the vernacular name for this plant, records it as growing "in wet places in lowlands and mountains" and states [along with Satake (1940)] that the species may grow also in China. I have personally seen a collection from Manchukuo, but not from China proper.

ERIOCAULON DECEMFLORUM f. COREANUM (H. Lecomte) Nakai

Additional bibliography: Moldenke, Phytologia 2: 378 (1947) and 19: 34. 1969.

ERIOCAULON DECIPIENS N. E. Br.

Additional bibliography: Moldenke, Phytologia 3: 143 (1949) and 19: 34. 1969.

ERIOCAULON DEHNIAE H. Hess

Additional bibliography: H. Hess, Bericht. Schweiz. Bot. Ges. 67: 84—87 & 89, fig. 1. 1957; Stauffer, Excerpt. Bot. A.2: 84. 1960; Moldenke, Phytologia 18: 48. 1968.

Illustrations: H. Hess, Bericht. Schweiz. Bot. Ges. 67: 85, fig. 1. 1957.

ERIOCAULON DEIGHTONII Meikle
Additional bibliography: Moldenke, Phytologia 19: 334 & 469. 1970.

ERIOCAULON DEMBIANENSE A. Chiov.
Additional bibliography: Moldenke, Phytologia 18: 49 (1968) and 19: 471. 1970.

ERIOCAULON DESLANDESII Alv. Silv.
Additional bibliography: Moldenke, Phytologia 3: 142 (1949) and 19: 334. 1970.

ERIOCAULON DIAGUISSENSE Bourdu
Additional bibliography: Jaques-Félix, Excerpt. Bot. A.1: 72. 1959; Moldenke, Phytologia 19: 34—35. 1969.

ERIOCAULON DIANAE Fyson
Additional bibliography: Moldenke, Phytologia 2: 375 & 376. 1947; Santapau, Excerpt. Bot. A.11: 176. 1967; Moldenke, Phytologia 19: 334, 420, 421, 443, & 477. 1970.

ERIOCAULON DIANAE var. LONGIBRACTEATUM Fyson
Additional bibliography: Moldenke, Phytologia 19: 35—36 (1969) and 19: 246, 443, & 478. 1970.

ERIOCAULON DICTYOPHYLLUM Körn.
Additional & emended bibliography: Körn. in Mart., Fl. Bras. 3 (1): 485, 486, & 507. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 43, 51, 59, 285, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Phytologia 2: 374. 1947; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Moldenke, Phytologia 19: 334—335. 1970.
Hunt & Ramos describe this plant as a "white-flowered herb, one of [the] dominants with grass 5876", flowering and fruiting in June at 600 to 1000 meters altitude.
Additional citations: BRAZIL: Mattogrosso: Hunt & Ramos 5874 (N).

ERIOCAULON DIMORPHOELYTRUM Koyama
Additional bibliography: Koyama in Ohwi, Fl. Jap. 266 & 269. 1965; Moldenke, Phytologia 18: 85. 1969.
Koyama (1965) states that this species is found only in peat bogs of the Ozegahara Moor on Honshu island and records the vernacular name variant "yuki-imu-no-hige".

ERIOCAULON DIMORPHOPETALUM Moldenke
Additional bibliography: Moldenke, Phytologia 2: 378. 1947; Moldenke, Alph. List Cit. 3: 975. 1949; Moldenke, Phytologia 18: 56. 1968.

ERIOCAULON DIOECUM Ruhl.
Additional & emended bibliography: Moldenke, Phytologia 1: 316, 350, & 355. 1939; Moldenke, Alph. List Cit. 1: 186. 1946; Moldenke, Phytologia 18: 56. 1968.

ERIOCAULON DREGEI Hochst.
Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 161, 172, & 189. 1969; Moldenke, Phytologia 20: 10. 1970.

ERIOCAULON EBERHARDTII H. Lecomte
Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 171, 172, & 189. 1969; Moldenke, Phytologia 19: 335. 1970.

ERIOCAULON ECHINACEUM Van Royen
Additional bibliography: K. U. Kramer, Excerpt. Bot. A.6: 33. 1963; Moldenke, Phytologia 19: 37. 1969.

ERIOCAULON ECHINOSPERMOIDEUM Ruhl.
Additional & emended bibliography: Moldenke, Phytologia 1: 316 & 350. 1939; Moldenke, Alph. List Cit. 1: 187. 1946; Moldenke, Phytologia 18: 58. 1968.

ERIOCAULON ECHINOSPERMUM C. Wright
Additional & emended bibliography: Moldenke, Phytologia 1: 316, 350, 352, 355, 361, & 363 (1939) and 19: 335. 1970.

ERIOCAULON ECHINULATUM Mart.
Additional bibliography: Ohwi, Journ. Jap. Bot. 33: 211. 1958; Hisauchi, Excerpt. Bot. A.2: 194. 1960; Koyama in Ohwi, Fl. Jap. 265 & 266. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 171 & 189. 1969; Moldenke, Phytologia 20: 10. 1970.
Koyama (1965) says that "the typical phase [of this species] occurs in s. China, Indochina, and India".

ERIOCAULON EDWARDII Fyson
Additional bibliography: Moldenke, Phytologia 18: 85 & 104. 1969.

ERIOCAULON EDWARDII var. CLARKEI Haines
Additional bibliography: Moldenke, Phytologia 18: 85 & 104. 1969.

ERIOCAULON EHRENBERGIANUM Klotzsch
Additional bibliography: Rzedowski & McVaugh, Contrib. Univ. Mich. Herb. 9: 76 & 89. 1966; Moldenke, Phytologia 20: 10, 14, & 297. 1970.
The Andersons found this plant "abundant" in gently running water below a seeping hillside in a pine-oak forest.
Additional citations: MEXICO: México: Anderson & Anderson 5023 (Mi). HONDURAS: Gracias a Dios: F. A. Barkley 40585 (Ac).

ERIOCAULON EKMANNII Ruhl.
Additional & emended bibliography: Moldenke, Phytologia 1: 317 & 350 (1939) and 19: 335. 1970.

ERIOCAULON ELICHRYSOIDES Bong.
Additional synonymy: Eriocaulon helicrysoides Hare, Journ. Linn. Soc. Lond. Bot. 53: 423, sphalm. 1950.
Additional & emended bibliography: V. A. Pouls., Medd. Naturf. Foren. Kjøb. 1888: 221—388. 1888; Beauverd, Bull. Herb. Boiss., sér. 2, 8: 284—285, fig. 9 A 1—14 (1908) and 8: 987 & 988. 1909; Hare, Journ. Linn. Soc. Lond. Bot. 53: 423. 1950; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148, 160, 161, 170—173, 186, 187, & 189. 1969; Moldenke, Phytologia 20: 10. 1970.

ERIOCAULON EQUISETOIDES Van Royen
Additional bibliography: K. U. Kramer, Excerpt. Bot. A.6: 33. 1963; Moldenke, Phytologia 19: 38—39 (1969) and 19: 234, 236, & 244. 1970.

ERIOCAULON EURYPEPLON Körn.
Additional & emended bibliography: Körn., Linnaea 27: 581, 583, 586, & 685—686. 1856; Körn. in Mart., Fl. Bras. 3 (1): 285 & 298. 1863; Moldenke, Phytologia 19: 336. 1970.

ERIOCAULON FENESTRATUM Bojer
Additional & emended bibliography: Körn., Linnaea 27: 586 & 671—672. 1856; Körn. in Mart., Fl. Bras. 3 (1): 505. 1863; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 161, 172, 187, & 189. 1969; Moldenke, Phytologia 19: 336. 1970.

ERIOCAULON FLUVIATILE Trimen
Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 171, 172, & 189. 1969; Moldenke, Phytologia 19: 40. 1969.

ERIOCAULON FRIESIORUM Bullock
Additional bibliography: Moldenke, Phytologia 19: 336 & 487. 1970.

ERIOCAULON FULIGINOSUM C. Wright
Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 186 & 191. 1969; Moldenke, Phytologia 20: 11. 1970.

ERIOCAULON FUSIFORME Britton & Small
Additional & emended bibliography: Moldenke, Phytologia 1: 317-318, 351, & 352. 1939; Moldenke, Alph. List Cit. 1: 64. 1946; Moldenke, Phytologia 18: 92—93. 1969.

ERIOCAULON GIBBOSUM Körn.
Additional bibliography: Malme, Bih. Svensk. Vet. Akad. Handl. 27 (3), no. 11: 32. 1901; Tomlinson in C. R. Metcalfe, Anat. Mono-

cot. 3: 171, 172, & 189. 1969; Moldenke, Phytologia 20: 11. 1970.

Hunt & Ramos describe this plant as a "white-flowered rosette herb, in wet campo between campo cerrado and gallery forest", at 600 to 1000 meters altitude, flowering and fruiting in June.

L. Riedel s.n. [Brasilia Prov. Goyas], distributed as typical E. gibbosum, seems to be var. longifolium Körn.

Additional citations: BRAZIL: Mattogrosso: Hunt & Ramos 6296 (N).

ERIOCAULON GIBBOSUM var. LONGIFOLIUM Körn.

Additional bibliography: Moldenke, Phytologia 19: 68. 1969.

Hunt & Ramos describe this plant as a common white-flowered herb on waterlogged campos, at 600 to 1000 meters altitude, flowering and fruiting in June.

Additional citations: BRAZIL: Goiás: L. Riedel s.n. [Brasilia Prov. Goyas] (S). Mattogrosso: Hunt & Ramos 5903 (N).

ERIOCAULON GIBBOSUM f. VIVIPARUM Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 50: 12948. 1969; Moldenke, Phytologia 19: 41. 1969.

ERIOCAULON GILGIANUM Ruhl.

Additional bibliography: Moldenke, Phytologia 19: 337, 452, & 489. 1970.

ERIOCAULON GLABERRIMUM Miyabe & Satake

Additional synonymy: Eriocaulon atrum var. glaberrimum (Satake) Koyama in Ohwi, Fl. Jap. 270. 1965.

Additional bibliography: Koyama in Ohwi, Fl. Jap. 270. 1965; Moldenke, Phytologia 18: 98 (1969) and 20: 247. 1970.

ERIOCAULON GLAUCUM Griff.

Additional bibliography: Moldenke, Phytologia 18: 177 (1969) and 19: 451. 1970.

ERIOCAULON GLAZIOVII Ruhl.

Additional bibliography: Moldenke, Phytologia 2: 492 (1948), 18: 178 (1969) and 19: 29. 1969.

ERIOCAULON GRAPHITINUM F. Muell. & Tate

Additional bibliography: Moldenke, Phytologia 2: 376 & 378 (1947) and 19: 42. 1969.

ERIOCAULON GREGATUM Körn.

Additional & emended bibliography: Körn., Linnaea 27: 579, 584, & 606—607. 1856; Moldenke, Phytologia 19: 337. 1970.

ERIOCAULON GRISEUM Körn.

Additional & emended bibliography: Körn., Linnaea 27: 599. 1856; Körn. in Mart., Fl. Bras. 3 (1): 288, 292, 475, 479, 500, & 507, pl. 60, fig. 3. 1863; Moldenke, Phytologia 19: 35 & 43. 1969.

ERIOCAULON GUADALAJARENSE Ruhl.

Additional & emended bibliography: Moldenke, Phytologia 1: 318, 350, & 360 (1939) and 19: 337. 1970.

ERIOCAULON GUYANENSE Körn.

Additional bibliography: Moldenke, Phytologia 20: 11 & 12. 1970.

While Körnicke first proposed Eriocaulon guianense as the name for this plant in Linnaea 27: 288 (1856), this was a nom. nud., with no description and merely a reference to his paper in Mart., Fl. Bras., which was apparently then in preparation but not yet published. In the latter work, when finally published, he described the species and wrote the specific epithet "guyanense". These binomials are not invalidated by the Eriocaulon guianense A. Dietr. of 1855 because this name was published only in synonymy by Steudel (Syn. Pl. Glum. 2: [Cyp.] 269 & 334).

ERIOCAULON HAMILTONIANUM Mart.

Additional & emended bibliography: Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 41, pl. 1, fig. 2. 1835; Moldenke, Phytologia 20: 11--12. 1970.

Emended illustrations: Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): pl. 1, fig. 2. 1835.

The Martius work (1835) cited above is often cited as "1833", the date of its submission to the Academy for publication, but the late botanical bibliographer, Dr. J. H. Barnhart, says "I can find no evidence that this paper was published until 1835".

ERIOCAULON HANANOEGOENSE Masamune

Additional synonymy: Eriocaulon atrum var. hananoegoense (Masamune) Koyama in Ohwi, Fl. Jap. 270. 1965.

Additional bibliography: Moldenke, Phytologia 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 270. 1965; Moldenke, Phytologia 19: 44 (1969) and 20: 247. 1970.

Koyama (1965) records the vernacular variant "yakushima-hoshi-kusa" for this plant and states that the species is known thus far only from the island of Yakushima and that it differs from E. atrum only in being more dwarf in stature.

ERIOCAULON HELEOCHARIOIDES Satake

Synonymy: Eriocaulon heleocharoides Satake ex Koyama in Ohwi, Fl. Jap. 267. 1965.

Additional bibliography: Moldenke, Phytologia 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 266 & 267. 1965; Moldenke, Phytologia 18: 108--109. 1969.

Koyama (1965) avers that this is a very local species, growing on the wet sandy banks of the Motoara River in Musashi Province, on Honshu island, only. The common names, "kosigaya-hosikusa" and "koshigaya-hoshi-kusa", are recorded for it. The type is Y. Satake s.n. from Kosigaya, Musashi Province, Honshu, Japan, collected in October, 1938, and deposited in the herbarium of Tokyo Univer-

sity; another collection from the same locality is F. Maekawa s. n. [Sept. 1938].

ERIOCAULON HENRYANUM Ruhl.
Additional bibliography: Moldenke, Alph. List Cit. 3: 702, 858, & 859 (1949) and 4: 1222. 1949; Hansen, Excerpt. Bot. A.12: 520. 1967; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 161. 171—173, & 189. 1969; Moldenke, Phytologia 19: 44 (1969) and 19: 245. 1970.
Van Beusekom & Phengkhlai found this plant growing in open forests of Pinus khasya and Dipterocarpus tuberculatus, inhabiting boggy places, with whitish flowers in June, and distributed specimens of it to herbaria as a member of the Compositae.
Additional citations: THAILAND: Van Beusekom & Phengkhlai 1153 (Ac).

ERIOCAULON HERZOGII Moldenke
Additional bibliography: Moldenke, Phytologia 19: 44—45 (1969) and 19: 238. 1970.

ERIOCAULON HETERODOXUM Moldenke
Additional bibliography: Moldenke, Phytologia 2: 378. 1947; Moldenke, Alph. List Cit. 3: 701 & 894. 1949; Moldenke, Phytologia 18: 112. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 184, 186, & 191. 1969.

ERIOCAULON HETEROLEPIS Steud.
Additional bibliography: Moldenke, Phytologia 20: 12 & 28. 1970.

ERIOCAULON HETEROLEPIS var. NIGRICANS Körn.
Additional bibliography: Moldenke, Phytologia 19: 46 (1969) and 19: 477. 1970.

ERIOCAULON HETEROPEPLON Alv. Silv.
Additional bibliography: Moldenke, Phytologia 2: 374 & 378 (1947) and 19: 46. 1969.

ERIOCAULON HETEROPETALUM Ruhl.
Additional & emended bibliography: Moldenke, Phytologia 1: 318, 351, & 355. 1939; Moldenke, Alph. List Cit. 1: 187. 1946; Moldenke, Phytologia 18: 180. 1969.

ERIOCAULON HEUDELOTII N. E. Br.
Additional bibliography: Moldenke, Phytologia 19: 338, 450, & 489. 1970.

ERIOCAULON HIRSUTULUM Moldenke
Additional bibliography: Moldenke, Phytologia 18: 181. 1969; G. Taylor, Ind. Kew. Suppl. 14: 54. 1970.

ERIOCAULON HONDOENSE Satake

Additional synonymy: Eriocaulon miqueliamum sensu auct. Japon. ex Koyama in Ohwi, Fl. Jap. 268, in syn. 1965.

Additional bibliography: Moldenke, Phytologia 2: 493 & 494 (1948) and 3: 143 & 144. 1949; Koyama in Ohwi, Fl. Jap. 266, 268, & 269. 1965; Moldenke, Phytologia 19: 409, 454, & 456. 1970; Moldenke, Biol. Abstr. 51: 9023. 1970.

Koyama (1965) describes this species as "common" in wet lowlands of Hokkaido, Honshu, Shikoku, and Quelpaert Island, and records the vernacular names "hoshizaki-inu-no-hige" and "nippon-inu-no-hige".

ERIOCAULON HONDOENSE var. PILOSUM Satake

Additional bibliography: Moldenke, Phytologia 2: 493 & 494 (1948) and 18: 184. 1969.

ERIOCAULON HONDOENSE var. STELLATUM Satake

Additional synonymy: Eriocaulon hondoense f. stellatum (Satake) Koyama in Ohwi, Fl. Jap. 268. 1965.

Additional bibliography: Moldenke, Phytologia 2: 493 & 494. 1948; Koyama in Ohwi, Fl. Jap. 268. 1965; Moldenke, Phytologia 18: 184--185. 1969.

ERIOCAULON HOOKERIANUM Stapf

Additional synonymy: Eriocaulon hookeriana Stapf, in herb.

Additional bibliography: Moldenke, Phytologia 20: 12. 1970.

Additional citations: INDONESIA: GREATER SUNDA ISLANDS: Sabah: Clemens & Clemens 50643 (N).

ERIOCAULON HOOKERIANUM var. MICROPHYLLUM Van Royen

Additional bibliography: K. U. Kramer, Excerpt. Bot. A.6: 33. 1963; Moldenke, Phytologia 19: 69--70 & 88. 1969.

ERIOCAULON HUIANUM Ruhl.

Additional bibliography: Moldenke, Phytologia 18: 187 (1969) and 19: 246. 1970.

ERIOCAULON HUMBOLDTII Kunth

Additional bibliography: Kuntze, Rev. Gen. Pl. 3 (2): 329. 1898; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 160, 161, 163, 172, 187, & 189. 1969; Moldenke, Phytologia 20: 8, 9, 11, & 12. 1970.

Hermann encountered this plant in open boggy soil on llanos.

Additional citations: COLOMBIA: Vichada: F. J. Hermann 11047 (W--194352). BRAZIL: Mattogrosso: Maguire, Murça Pires, Maguire & Silva 56270 (S).

ERIOCAULON HUMILE Moldenke

Additional bibliography: Moldenke, Phytologia 18: 189 (1969) and 19: 478. 1970.

ERIOCAULON INFIRMUM Steud.
Additional bibliography: Hansen, Excerpt. Bot. A.12: 520. 1967; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148, 171, 172, & 189. 1969; Moldenke, Phytologia 20: 12--13 & 356. 1970.

ERIOCAULON INFIRMUM var. KURZII (Fyson) Moldenke
Additional bibliography: Moldenke, Phytologia 19: 337 & 339. 1970.

ERIOCAULON INFIRMUM var. PUBERULENTUM (Moldenke) Van Royen
Additional bibliography: Moldenke, Phytologia 19: 337, 339--340, & 478. 1970.

ERIOCAULON INSULARE Ruhl.
Additional & emended bibliography: Moldenke, Phytologia 1: 318, 351, 352, & 355 (1939) and 19: 340. 1970.

ERIOCAULON INTERMEDIUM Körn.
Additional & emended bibliography: Körn., Linnaea 27: 578, 584, & 601--603. 1856; Körn. in Mart., Fl. Bras. 3 (1): 476, 501, & 505. 1863; Moldenke, Phytologia 2: 379 (1947) and 19: 340. 1970.

ERIOCAULON INUNDATUM Moldenke
Additional bibliography: Moldenke, Phytologia 18: 245 (1969) and 19: 450. 1970.

ERIOCAULON INYANGENSE Arwidsson
Additional bibliography: Moldenke, Phytologia 3: 143 (1949) and 18: 245. 1969.

ERIOCAULON JAPONICUM Körn.
Additional bibliography: Moldenke, Phytologia 2: 494 (1948) and 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 266--268. 1965; Moldenke, Phytologia 19: 340. 1970.
Koyama (1965) records the vernacular name "yamato-hoshi-kusa" for this species and states that the plant is "very local and scarce" in Kadzusa Province on Honshu Island, Japan.

ERIOCAULON KINABALUENSE Van Royen
Additional bibliography: Moldenke, Phytologia 20: 7 & 13. 1970.
Merrill annotated a specimen of Clemens & Clemens 51120 as "Eriocaulon brevipedunculatum Merr., alpine form".
Additional citations: INDONESIA: GREATER SUNDA ISLANDS: Sabah: Clemens & Clemens 51120 (N).

ERIOCAULON KIUSIANUM Maxim.
Additional bibliography: Moldenke, Phytologia 19: 341, 417, & 482. 1970.

ERIOCAULON KLOTZSCHII Moldenke
Additional bibliography: Körn., Linnaea 27: 601. 1856; Körn.

in Mart., Fl. Bras. 3 (1): 496—498 & 507. 1863; Moldenke, Phytologia 19: 341 & 455. 1970.

ERIOCAULON KOERNICKEI Britten

Emended synonymy: Eriocaulon pygmaeum Körn., Linnaea 27: 588, nom. nud. 1856; in Mart., Fl. Bras. 3 (1): 477—478. 1863 [not E. pygmaeum Dalz., 1851, nor Mart., 1841, nor Soland., 1809].

Additional & emended bibliography: Körn., Linnaea 27: 588. 1856; Körn. in Mart., Fl. Bras. 3 (1): 288, 291, 475, 477—478, 500, & 506, pl. 60, fig. 2. 1863; Moldenke, Phytologia 19: 72 (1969) and 20: 27, 416, & 417. 1970.

ERIOCAULON KÖRNICKIANUM Van Heurck & Muell.-Arg.

Additional & emended bibliography: Moldenke, Phytologia 1: 318, 350, 356, & 360 (1939) and 2: 153. 1946; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 191. 1969; Moldenke, Phytologia 19: 341 (1970) and 20: 41. 1970.

ERIOCAULON KUNTHII Körn.

Additional & emended bibliography: Körn. in Mart., Fl. Bras. 3 (1): 482—483 & 507. 1863; Moldenke, Phytologia 2: 494. 1948; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 172, 173, 187, 189, & 191. 1969; Moldenke, Phytologia 19: 341. 1970.

Additional citations: BRAZIL: Paraná: Hatschbach 22965 (Ac).

ERIOCAULON KURTZII Tomlinson

Bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 186—188. 1969.

This bibomial is not recorded in the Index Kewensis or any of its supplements and I do not know to what taxon it applies.

ERIOCAULON KUSIROENSE Miyabe & Kudo

Additional synonymy: Eriocaulon sachalinense var. kushiroense (Miyabe & Kudo) Koyama in Ohwi, Fl. Jap. 266 & 270. 1965.

Additional bibliography: Moldenke, Phytologia 3: 144. 1949; Koyama in Ohwi, Fl. Jap. 266 & 270. 1965; Moldenke, Phytologia 18: 255 & 449. 1969.

Koyama (1965) states that this plant is known only from Kushiro Province on Hokkaido island, Japan, and that E. sachalinense Miyabe & Nakai differs from it only in always having "2-lobed pistillate calyces and 2 stigmas". He records the vernacular name "kushiro-hoshi-kusa" for it.

ERIOCAULON LACUSTRE Ruhl.

Additional & emended bibliography: Moldenke, Phytologia 1: 318, 351, & 355. 1939; Moldenke, Alph. List Cit. 1: 187. 1946; Moldenke, Phytologia 18: 256. 1969.

ERIOCAULON LANATUM H. Hess

Additional & emended bibliography: H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 137—139, 145, & 181, pl. 8, fig. 1, 2, & 4.

1955; Moldenke, Phytologia 19: 72—73. 1969.

PAEPALANTHUS BELLUS Moldenke

Synonymy: Paepalanthus bellis ? Hocking, Excerpt. Bot. A.6: 455, nom. provis. 1963.

Bibliography: Moldenke, Résumé Suppl. 4: 5. 1962; Moldenke, Phytologia 8: 391. 1962; Hocking, Excerpt. Bot. A.6: 455. 1963; Moldenke, Biol. Abstr. 42: 1517. 1963; Angely, Bibl. Veg. Paran. 197. 1964; Moldenke, Résumé Suppl. 12: 11. 1965; Angely, Fl. Anal. Paran., ed. 1, 200. 1965; G. Taylor, Ind. Kew. Suppl. 14: 97. 1970.

Citations: BRAZIL: Paraná: Hatschbach 7394 (Z—type).

PAEPALANTHUS BENEDICTI Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 238—240 & 402, pl. 159. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 95 & 485. 1959.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 159. 1928.

The type of this species was collected by Dr. Benedicto Quintino dos Santos in fields near Marins, at an altitude of 2422 meters, in the Serra da Mantiqueira, Minas Gerais, Brazil, in July of 1922 and is number 635 in the Sulveira herbarium. Silveira (1928) notes that the "Species ab affine P. oligocephalo Koern. valde distincta ob folia glabra, pedunculos validiores, bracteas involucrantes ab inicio dorso glabras, et alios characteres". Thus far, the species is known only from the original collection.

PAEPALANTHUS BIFIDUS (Schrad.) Kunth

Synonymy: Eriocaulon bifidum Schrad. in Roem. & Schult., Mant. 2: 468. 1824. Eriocaulon fasciculatum Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 624. 1831 [not E. fasciculatum Lam., 1789, nor Rottb., 1778, nor Willd., 1959]. Eriocaulon bifidum Schrank ex Steud., Nom. Bot., ed. 2, 1: 585. 1840. Eriocaulon (Paepalanthus) pygmaeum Mart., Flora 24, Beibl. 2: 60. 1841. Eriocaulon caespitosum Poepp. ex Kunth, Enum. Pl. 3: 612, in syn. 1841 [not E. caespitosum Wikstr., 1820]. Eriocaulon caespitosum (Wikstr.?) Poepp. ex Kunth, Enum. Pl. 3: 506, in syn. 1841. Eriocaulon fasciculare Weigelt ex Kunth, Enum. Pl. 3: 506 & 613, in syn. 1841. Eriocaulon villosum Salzm. ex Steud., Syn. Pl. Glum. 2: [Cyp.] 277 & 334. 1855 [not E. villosum El., 1968, nor Michx., 1803, nor Willd., 1854]. Eriocaulon pygmaeum Mart. ex Steud., Syn. Pl. Glum. 2: [Cyp.] 334. 1855 [not E. pygmaeum Dalz., 1851, nor Körn., 1863, nor Soland., 1809]. Eriocaulon acrotrichum Steud., Syn. Pl. Glum. 2: [Cyp.] 277 & 333. 1855. Paepalanthus bifidus Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 297. 1863. Paepalanthus schraderi Körn. in Mart., Fl. Bras. 3

(1): 360. 1863. Eupaepalanthus schraderi Körn. ex V. A. Pouls., Vidensk. Meddel. Kjøbenh. 1888: 332. 1888. Dupatya bifida (Schrad.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Eriocaulon bifida Schrad. ex Kuntze, Rev. Gen. Pl. 2: 746, in syn. 1891. Paepalanthus fasciculatus Kunth apud Ruhl. in Urb., Symb. Ant. 1: 483, in syn. 1900. Dupatya bifida Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Paepalanthus bifidus var. exappendiculata Ruhl. in Urb., Symb. Ant. 1: 483. 1900. Eriocaulon fasciculatum Weig. ex Moldenke, Résumé Suppl. 1: 17, in syn. 1959. Paepalanthus bifidus Schrad. ex Moldenke, Résumé 323, in syn. 1959. Paepalanthus fasciculatum Weigelt, in herb. Paepalanthus fasciculatus f. pygmaea Körn., in herb.

Bibliography: Raeusch., Nom. Bot. 30. 1797; Roem. & Schult., Mant. 2: 468. 1824; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 624. 1831; Bong., Ess. Monog. Erioc. 3, 5, & 6. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 506, 511, 512, 612, 613, & 624. 1841; Mart., Flora 24, Beibl. 2: 60. 1841; Klotzsch in M. R. Schomb., Reisen Brut.-Guian. [Vers. Fauna & Fl. Brit.-Guian.] 3: 896. 1848; D. Dietr., Syn. Pl. 5: 260. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 277, 282, 333, & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 297, 360—362, 505, & 507, pl. 60, fig. 2. 1863; Benth. & Hook. f., Gen. Pl. 3 (2): 1024. 1883; V. A. Pouls., Vidensk. Meddel. Kjøbenh. 1888: 332. 1888; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 877—879 (1893) and 2: 401 & 402. 1894; Ruhl. in Urb., Symb. Ant. 1: 483. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 21, 152—154, [283]—285, & 287—291. 1903; Alv. Silv., Fl. Mont. 1: 402. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 51. 1930; J. F. Macbr., Field Mus. Publ. Bot. 13 (363): 490 & 491. 1936; Moldenke, N. Am. Fl. 19: 43. 1937; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 5—7, 10, 28, 32—34, 39, 41, 45, 48, 53, & 54. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 877—879 (1946) and 2: 401 & 402. 1946; Moldenke, Alph. List Cit. 1: 155, 156, 222, & 239. 1946; Moldenke, Phytologia 2: 379. 1947; Moldenke in Maguire & al., Bull. Torr. Bot. Club 75: 195. 1948; Moldenke, Alph. List Cit. 2: 353, 460, 544, 582, & 645 (1948), 3: 701, 710, 731, 814, 855, 891, & 956 (1949), and 4: 1169. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 60, 66—68, 82, & 208. 1949; Moldenke, Phytologia 4: 135—136. 1952; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 57, 67, 75, 77, 78, 95, 279, 285, 286, 288, 291, 293, 294, 323, 325, 327, 328, & 485. 1959; Moldenke, Résumé Suppl. 1: 6 & 17 (1959) and 2: 5. 1960; Rennó, Levant. Herb. Inst. Agron. 71. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877—879 (1960) and 2: 401 & 402. 1860; Moldenke, Résumé Suppl. 3: 12 & 34 (1962), 6: 6 (1963), and 11: 4. 1964; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 159, 160, 162, 167, 173, 174, 184, & 189. 1969; Moldenke, Phytologia

18: 250 & 428 (1969), 19: 331 & 332 (1970), and 20: 27, 39, & 297. 1970.

Kunth (1841), quoting Schrader, describes this species as follows: "Caule subbifido, folioso; foliis lineari-subulatis, recurvatis, pilosis; pedunculis terminalibus, angulatis, hirtis; involucri foliolis capitulum aequantibus calycibusque pilosis. Schrad. Eriocaulon bifidum Schrad. in Roem. et Schult. Mant. 2. 468. — Brasilia. — Caules caespitosi, 1 1/2 — 2 pollicares, tenues, erecti, saepe bifidi, rarius bis bifidi, dense foliosi. Folia 3—5 lin. longa. Pedunculi capillares, 5—8-pollicares. Capitulum magnitudine grani piperis. Involucri foliola 9—12, caulinis similia, longitudine capituli. Receptaculum pilosum. (Schrad.)" He also states that P. flaccidus (Bong.) Kunth is related to P. bifidus "sed recedit: caule non caespitoso, nec bifido, statura multo altiore". This same author, in making the new combination, Paepalanthus fasciculatus, apparently erroneously united Rottbøll's Eriocaulon fasciculatum (1778) with Bongard's Eriocaulon fasciculatum (1831), but the specimens he cites and on which he bases most of his description are all P. bifidus. For this reason his binomial was regarded by Ruhland (1903) as being based on Eriocaulon fasciculatum Bongard, rather than on Eriocaulon fasciculatum Rottb., and is placed in the synonymy of P. bifidus. Under this interpretation Kunth's P. fasciculatus would invalidate the P. fasciculatus credited to Körnicke (1863) by Ruhland, since the latter would be a later homonym and therefore invalid under the present edition of the International Rules of Botanical Nomenclature, and the widespread species now known by that binomial would have to receive a new binomial name. It would seem more practical to me to regard Kunth's combination as being based on the earliest of the name-bringing synonyms which he cites, namely, Eriocaulon fasciculatum Rottb., regardless of the description which he gave and the specimens which he cited, and therefore to retain that binomial, as Paepalanthus fasciculatus (Rottb.) Kunth, for the plant which Ruhland designated as P. fasciculatus (Rottb.) Körn.

It should also be noted here that plate 60, figure 2, of Mart., Fl. Bras. 3 (1) [1863] is sometimes cited as depicting P. bifidus, but actually it depicts Eriocaulon koernickei Britten.

It is also worth noting here that Ruhland (1900, 1903) cites Klotzsch's work (1848) as "in R. Schomb. Reise in Br. Guian. VIII (1848), 96", he dates Körnicke's work (1863) as "1871" and Roemer & Schultes' work (1824) as "1817", and erroneously gives p. "516" instead of "506" for the place of publication of Kunth's P. fasciculatus.

Gleason, in his unpublished Flora of British Guiana, describes P. bifidus as "Hirsute; stems erect, simple, 5—15 cm. tall; leaves crowded, especially near the summit, thin, spreading, 1—3 cm. long; peduncles numerous, 2—5 cm. long, the sheaths equaling the leaves; heads subglobose, about 3 mm. in diameter, pale brown;

bracts about uniform in length, somewhat exceeding the flowers, linear-lanceolate, long-acuminate". He avers that it is abundant in sandy soil throughout Guyana and cites Alston 41, Appun 656, De la Cruz 1700, 1750, 1849, 2525, & 3435, H. A. Gleason 633, A. S. Hitchcock 17075, ImThurn B.9 & 365, Jenman 2197, 5287, 5803, & 7886, Lang s.n., Leechman IV, Parker s.n., M. R. Schomburgk 96, 139, & 183. He, as well as Ruhland (1903) and Macbride (1936), records the species from Colombia, but this record is based on Wallis 13, a collection not as yet seen by me and only doubtfully from Colombia. Similarly, Ruhland (1903) records the species from the island of Hispaniola on the basis of a Meyerhoff collection, which, again, is doubtfully from that island and is more probably from French Guiana, as previously suggested by me (1937). In his 1900 work Ruhland comments as follows: "Hab. in Hispaniola (an re vera ex hac insula, anne e. Guiana?): Mayerhoff s.n. -- Praeterea in America meridionali divulgata ab oris Surinami et Guianae anglicae usque ad provinciam Bahia. Varietas nostra [var. exappendiculata] fluvium Amazonum non transfredi videtur". In his 1903 work he apparently abandons this variety although he fails to account for the name in his synonymy anywhere.

Macbride (1936) cites Weberbauer 4607 from San Martín, Peru, and even assures us that this identification was made by Ruhland himself. I have personally not seen any material of the species from Hispaniola, Colombia, or Peru. Silveira (1928) cites A. Silveira 1898 from the Serra Geral of Minas Gerais, Brazil.

Eriocaulon caespitosum Poepp. is based on Poeppig 2969 from Coïares at the mouths of the Amazon river in Pará, E. pygmaeum Mart. is based on Martius 558 from Bahia (collected by Luschnath), and E. villosum Salzm. is based on Salzmann s.n., collected "in sabulosis aridis, Bahia" and deposited in the herbarium of the Jardin Botanique de l'Etat at Brussels. It should be noted that E. caespitosum Wikstr. is the name-bringing synonym of what is now known as Syngonanthus caespitosus (Wikstr.) Ruhl.; E. villosum Willd. is a synonym of E. decangulare L., while the homonyms attributed to Ellis and to Michaux are synonyms of Lachnocaulon anceps (Walt.) Morong; E. fasciculatum Lam. is now known as P. lamarckii Kunth, while E. fasciculatum Rottb. now goes under the name P. fasciculatus (Rottb.) Kunth; E. pygmaeum Soland. is a valid species, but E. pygmaeum Dalz. is now known as E. xeranthemum Mart. and E. pygmaeum Körn. is E. koernickei Britten.

Jackson (1893) reduces Eriocaulon fasciculare Weigelt to what he calls Paepalanthus congestus Kunth [now in the synonymy of P. fasciculatus (Rottb.) Kunth].

Ruhland (1903) cites the following specimens deposited at Berlin except where otherwise noted: HISPANIOLA: Mayerhoff s.n. COLOMBIA: Wallis s.n. [im Hochland]. GUYANA: M. R. Schomburgk 139 [96] (V). SURINAM: Hostmann 823, Kegel s.n. [near Mariepas-

ton], Roland s.n., Splitgerber s.n., Weigelt s.n. FRENCH GUIANA: Mélinon 49. BRAZIL: Amazonas: Schwacke 4087, Spruce 1564. Bahia: Blanchet 184, 1650 (V), 2599 (V), Lhotzky s.n., Luschnath 24, 32, L. Riedel s.n., Salzmann s.n., Sellow s.n. [between Vittoria and Bahia], Wallis s.n. [Obidos], Wied-Neuwied s.n. [Viçosa]. Minas Gerais: Martius 555, 558, Mendonça 321, Schwacke 8494, Sena s.n. [Herb. Schwacke 14544]. Pará: Huber 1267, Poeppig 2969, s.n. [Rio Pará], Spruce s.n. [Pará]. Pernambuco: Schwacke 4269. He comments that "Appendices styli adsunt vel desunt".

Collectors have found this plant growing in dry sand, dry sandy or gravelly places, or sandy soil in general, in low scrub on white sand, in low wet white sand areas, and in dry sand clearings, at altitudes of 300 to 1100 meters, flowering and fruiting from March to December. Schomburgk states that it flowers throughout the year. Collectors describe the plant as a small herb, to 4 inches tall, with whitish or brownish inflorescences. The only vernacular name recorded for it is "capim mortinha". Maguire and his associates refer to the plant as "common", "locally frequent", or "a locally common weedy annual".

Material has been misidentified and distributed in herbaria under the names Eriocaulon caespitosum Wikstr., Eriocaulon fasciculatum Lam., Eriocaulon fasciculatum Rottb., Paepalanthus caulescens Kunth, P. congestus Kunth, P. fasciculatus Körn., P. lamarckii Kunth, and Syngonanthus caulescens (Poir.) Ruhl. Coêlho de Moraes 2215, cited below, is a mixture with P. minutulus Mart., Maguire & Fanshawe 23560 and Murça Pires & Silva 4708 are both mixtures with P. fasciculatus (Rottb.) Kunth, and Snethlage 8187 is a mixture with P. fasciculatus f. sphaerocephalus Herzog.

Additional citations: VENEZUELA: Bolívar: Maguire, Steyermark, & Maguire 53598 (N); J. A. Steyermark 89671 (Mi, N). GUYANA: Archer 2439 (W—1663174); C. D. K. Cook 10 (K); J. S. de la Cruz 1700 (Ca—279741, Mi, W—1190180), 1750 (Ca—280788, W—1190224), 1849 (Ca—280290, W—1190307), 2525 (Ca—298797, Mi, W—1231307), 3435 (Ca—300590, Mi, W—1282691); H. A. Gleason 633 (N); S. G. Harrison 554 (K); A. S. Hitchcock 17075 (S, W—1056251); Jenman 5287 (W—200888, W—936244); H. Lang s.n. [Bartica, Oct. 4, 1922] (W—1199193); Maguire & Fanshawe 23560, in part (N), 32204 (N), 32562 (N); Robertson & Austin 248 (N); M. R. Schomburgk 96 (B), 183 (B); L. B. Warren s.n. [Georgetown, 1924] (W—1280098). SURINAM: Collector undetermined 1126a [326] (Ut—44077a); Essed s.n. [Sept. 1914] (N, Ut—44076a); Focke 480 (Ut—344), 1382 (Ut—343); Hostmann 823 (B, Ut—344); Kramer & Hekking 2441 (N); Lanjouw 162 (Ut—44075a); Lanjouw & Lindeman 2985 (Ut—17881b); Versteeg 29 (Ut—345); Weigelt s.n. [1827] (B, Mi); Wullschlägel 1645 (Br). FRENCH GUIANA: Mélinon 49 (B), 65 (B, N); Sagot 354 (Br, Er, S).

BRAZIL: Amapá: Irwin, Egler, & Murça Pires 47324 (N); Murça Pires & Cavalcante 52143 (N). Amazônas: Forero, Prance, Pena, & Ramos 4682 (Rf); Prance, Pena, Forero, & Ramos 4684 (N, S); Prance, Ramos, Farias, & Philcox 4835 (N, Rf); E. Santos 1475 [Fromm 1453; Sacco 1710; Trinta 379; Herb. Brad. 25625] (Lw); Spruce 1504 (S, S). Bahia: Belém 1684 (Ac); Blanchet 2599 (M), 6038 [Herb. Mus. Goeldi 3347] (Bs); Collector undetermined s.n. [Bahia] (Ut--342); A. P. Duarte 5949 [Herb. Brad. 15443] (Lw); Glocker 332 (S); Luschnath 32 [Martius 558] (Br, Br, M, N--photo, Z--photo), 36 (Br), 38 [Martius 555] (Br, Br, Br, S); A. Lutz 1261 (Ja); Salzmann s.n. [Bahia] (Br, N); Sellow 50 C (S), 565 (Br, Br, N--photo, Z--photo). Ceará: O. Martin 2537 (Bs), 2540 (Bs); Swallen 4555 (W--1592043). Guanabara: Alston & Lutz 132 (Ac, Ja--113693, Ja, Ut--43032a); W. Pereira 3852 [Herb. Brad. 6485] (Sm); Pereira, Liene, Sucre, & Duarte s.n. [E. Pereira 3852] (Bd--6484); N. Santos 5403 (Ja). Minas Gerais: Mexia 5816 [Herb. Leonard 8345] (B, Go, Mi, N, Qu, S, Ut--50247a, W--1571893); L. Riedel s.n. (Br); Schwacke 8494 [Herb. Jard. Bot. Belo Horiz. 26668] (N). Pará: G. A. Black 54-16152 (Ca--29925, Z); Drouet 2106 (Mi); Ducke 10805 (Bs), 11655 (Bs), 12087 (Bs); Goeldi 1102 (W--1199321); Huber 1617 (Bs); Killip & Smith 30700, in part (N, W--1480210); D. A. Lima 53-1604 (Be--81051); Murça Pires 4077 (Z); Murça Pires & Black 19 (Ca--743859); Murça Pires, Black, Wurdack, & Silva 6161 (N); Murça Pires & Silva 4708, in part (N, Ut--73001, W--2252820); Poeppig 2969 (B), s.n. [Rio Pará] (B); A. Silva 210 (Be--13107, N, W--2278333); Snethlage 8187, in part (Bs); Spruce s.n. [prope Santarem, 1850] (S, S); Zerny s.n. [13 Mai 1927] (V--10786). Paraíba: Coêlho de Moraes 2215, in part (Mm); Tavares 1070 (W--2407871). Pernambuco: Ridley & Lea s.n. (S); Tavares 828 (W--2403785), 829 (W--2403786), 835 (W--2403792). Rio Grande do Norte: Tavares 422 (Bd--24140). LOCALITY OF COLLECTION UNDETERMINED: Herb. J. Gay s.n. [5 Oct. 1862] (W--152104).

PAEPALANTHUS BIFRONS Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 206--208 & 402, pl. 136 & 254. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Angely, Fl. Paran. 10: 4. 1957; Moldenke, Résumé 95 & 485. 1959.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 136 & 254. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 681) in fields at Chapada do Couto, Minas Gerais, Brazil, in April of 1918 and is deposited in the Silveira herbarium. The plate 254, cited above, purports to show this species

in situ on Marinheiros Island, Rio Grande do Sul. Thus far the species is known only from the original collection and from the photograph referred to above, which is not sufficiently clear to enable one to verify the identification.

PAEPALANTHUS BIFRONS var. FUSCIOR Alv. Silv.

Synonymy: Paepalanthus bifrons var. fusciora Alv. Silv., Fl. Mont. 1: 207. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 207--208 & 402. 1928; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 95, 323, & 485. 1959.

Silveira (1928) describes this taxon as having "Bracteae involucrantes fuscae, ciliatae, dorso glabrae vel glabriusculae. Perigonium fuscum." The type is A. Silveira 682 from fields at Chapada do Couto, Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. It is known thus far only from the original collection.

PAEPALANTHUS BLEPHAROPHORUS (Bong.) Kunth

Synonymy: Eriocaulon blepharophoron Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 626. 1831. Eriocaulon blepharophorum Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 2 (3): pl. 16. 1832. Paepalanthus blepharophorus β humilis Kunth, Enum. Pl. 3: 499. 1841. Paepalanthus blepharophorus Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 281, 376, 377, & 507. 1863. Dupatya blepharophora (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya blepharophora Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Paepalanthus blepharophorus (Bong.) Körn. ex Ruhl. in Engl., Pflanzenreich 13 (4-30): 130. 1903. Paepalanthus blepharophorus var. humilis Kunth apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 130, in syn. 1903.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 626. 1831; Bong., Ess. Monog. Erioc. 26 (1831) and 66--68 & 229--231, pl. 16. 1832; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 2 (3): 229--231, pl. 16. 1832; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 499, 522, 574, 612, & 624. 1841; D. Dietr., Syn. Pl. 5: 259. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 278 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 281, 376, 377, & 507. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 877 (1893) and 2: 401. 1894; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 8, 12, 123, 128, 130, [283], 284, & 289. 1903; Alv. Silv., Fl. Mont. 1: 69. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 41 & 43. 1930; Stapf, Ind. Lond. 3: 90. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 877 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 10, 28, 32, & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr.

3, 145. 1959; Moldenke, Résumé 95, 279, 286, 323, & 485. 1959; Moldenke, Résumé Suppl. 1: 6, 16, 19, & 25. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877 (1960) and 2: 401. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 190. 1969.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 2 (3): pl. 16. 1832; Bong., Ess. Monog. Erioc. pl. 16. 1832.

The type of this species was collected by Ludwig Riedel (no. 1041) in marshes at Villa Rica, in the Serra da Lapa, Minas Gerais, Brazil, flowering in November, and deposited in the Leningrad herbarium. An isotype in the herbarium of the Botanisches Museum at Berlin was photographed there by Macbride as his type photograph number 10573. The specific epithet is uppercased by Silveira (1928). Bongard's original (1831) description is "foliis pedunculos subaequantibus confertis lineari-lanceolatis acutis dense ciliatis; pedunculis caespitosis pubescentibus; vaginis brevissimis apice barbatis. Tab. XVI. Habitat in paludibus Serra da Lapa. Flor. Novembri." Kunth (1841) places Bongard's binomial in the synonymy of what he calls variety humilis with "foliis pedunculos subaequantibus", while what he apparently regarded as the typical form of the species is described as having "pedunculis....folia duplo superantibus" and is what we now call P. aequalis (Vell.) J. F. Macbr. Kunth also states that P. blepharophorus is related to P. lingulatus (Bong.) Kunth, which, he claims, "Differt a P. blepharophoro, cui affinis, praeter notas in charactere receptas: statura humiliora, foliis ad insertionem nudis (nec piloso-lanatis) et margine pilis longis distantibus ciliatis, qui in P. blepharophoro breves et densi". Ruhland (1903) cites only the type collection, and this is still the only known collection, as far as I am aware.

Citations: BRAZIL: Minas Gerais: L. Riedel 1041 [Macbride photos 10573] (B--isotype, Br--isotype, N--isotype, N--isotype, N--photo of isotype, N--photo of isotype, S--isotype, Ut--347--isotype, W--photo of isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS BOMBACINUS Alv. Silv.

Bibliography: Alv. Silv., Fl. Mont. 1: 82--83 & 402, pl. 49. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Phytologia 4: 136. 1952; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 234. 1956; Moldenke, Résumé 95 & 485. 1959; Rennó, Levant. Herb. Inst. Agron. 69. 1960.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 49. 1928.

This species was apparently based on two collections made by Álvaro Adolpho da Silveira in Minas Gerais, Brazil -- the first "In campis altis inter Serro et Pouso Alto locis arenosis humidisque" in April, 1908, and the second "In Chapada do Couto" in April, 1918 -- comprising no. 513 in the Silveira herbarium. Sil-

veira (1928) comments that "A P. fastigiato (Bong.) Koern. cum quo indumento foliorum accedit, magnitudine pedunculorum et bracteis involucrantibus haud albo-marginatis sed densissime pilis albis longisque extus obsitis differt". The species has been collected on campos, flowering from April to June.

Additional citations: BRAZIL: Minas Gerais: Black & Mendes Magalhães 51-12094 (Be—69918); Brade 13598 [Herb. Jard. Bot. Rio Jan. 25386] (B); Maguire, Mendes Magalhães, & Maguire 49036 (N); Mello Barreto 2534 [Herb. Jard. Bot. Belo Horiz. 6228] (N); Williams & Assis 6926 (Ca—744428).

PAEPALANTHUS BONGARDI Kunth

Synonymy: Eriocaulon repens Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 623 & 628, pl. 7. 1831 [not E. repens Lam., 1791]. Eriocaulon repens (Lam.?) Bong. ex Kunth, Enum. Pl. 3: 572, in syn. 1841. Eriocaulon decumbens Steud., Syn. Pl. Glum. 2: [Cyp.] 276. 1855. Dupatya bongardii (Kunth) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya bongardii Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Paepalanthus bongardii Kunth apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 173, in syn. 1903. Paepalanthus prostratus Mart. ex Moldenke, Résumé 327, in syn. 1959 [not P. prostratus Körn., 1863]. Eriocaulon decumbens Bong. ex Moldenke, Résumé Suppl. 1: 17, in syn. 1959. Paepalanthus prostratus Kunth, in herb.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 623 & 628, pl. 7. 1831; Bong., Ess. Monog. Erioc. 3, 16, 17, 23—24, & 48—49, pl. 7. 1831; Guill. in Deless., Icon. Sel. 3: 59. 1837; Kunth, Enum. Pl. 3: 519, 572, 573, 614, & 624. 1841; Steud., Syn. Pl. Glum. 2: [Cyp.] 276, 333, 334, & 342. 1855; Körn. in Mart., Fl. Bras. 3 (1): 277, 372—373, & 507. 1863; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 22. 1888; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 173—175, [283], 285, 287, & 289. 1903; Stapf, Ind. Lond. 3: 91. 1930; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 10, 29, 34, 39, & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Alph. List Cit. 4: 1301. 1949; Moldenke, Phytologia 4: 136. 1952; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 95, 279, 287, 291, 327, & 485. 1959; Moldenke, Résumé Suppl. 1: 17 & 19. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 (1960) and 2: 401. 1960; Rennó, Levant. Herb. Inst. Agron. 69. 1960; Moldenke, Phytologia 18: 242. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 173, 174, & 189. 1969.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér.

6, 1: pl. 7. 1831; Bong., Ess. Monog. Erioc. pl. 7. 1831.

The original description of this species, according to Kunth (1841), is "Caule decumbente, ramoso; foliis amplexicaulibus, linearibus, subcanaliculatis, basi pilosis, recurvis; pedunculis axillaribus, subfasciculatis vaginisque pubescentibus". The type was collected by Ludwig Riedel in shady moist sandy places in the Serra da Piedade, Minas Gerais, Brazil, and is deposited in the Leningrad herbarium. Interestingly, Kunth (1841), after quoting Bongard's original diagnosis, adds the note "Eriocaulon repens Bongard in Act. Petrop. 6. 1. 623. 648. t. 7. (excl. Lam.)..... Nostra planta bene convenit cum icone et descriptione Lamarckianis, sed recedit pedunculis et vaginis brevioribus. (Bong.)" On the same page, under Paepalanthus microphyllus (Guill.) Kunth, he notes for the latter taxon "Accedit ad Eriocaulon repens Bong.; differt pedunculis multo minoribus, aequalibus, glabris, crebrioribus, foliis brevioribus, magis recurvatis. (Guill.)" Ruhland (1903) maintains that it is related to P. brachyphyllus Ruhl. and P. scandens Ruhl.

The type of Paepalanthus prostratus, cited in the synonymy above, is a specimen collected by Peter Clausen (no. 182) near Cachoeira do Campo, Minas Gerais, Brazil, "Aug.-April 1840", and is deposited in the herbarium of the Jardin Botanique de l'État at Brussels. The P. prostratus Körn., referred to in the same synonymy above, is the name-bringing synonym of Blastocaulon prostratum (Körn.) Ruhl., while Eriocaulon repens Lam. is now known as Paepalanthus repens (Lam.) Körn. Stapf (1930) erroneously cites Bongard's plate 7 (1831) under Eriocaulon repens Lam.

Unfortunately, in all my previous publications I blindly followed Ruhland's orthography (1903) of the specific epithet of this taxon, but I see now that Kunth's original spelling of it was with only a single terminal "i". It seems to me that, notwithstanding recent recommendations in the Rules, the original orthography should be retained, as it was by Steudel (1855), Körnicke (1863), Hieronymus (1888), Jackson (1893, 1894), and Durand (1902).

The species has been collected in anthesis in January, February, May, and September, growing in marshy ground and in shady damp places in sandy soil. Ruhland (1903) cites P. Clausen 1182 [probably an error for "182"], L. Riedel s.n., and Warming s.n. from Minas Gerais, and L. Riedel 1482 from São Paulo, all deposited in the herbarium of the Botanisches Museum at Berlin.

Material has been misidentified and distributed in herbaria under the name Eriocaulon repens Lam. On the other hand, the Wainio s.n. [Carassa, IV.1885], distributed as P. bongardi, is actually P. flaccidus (Bong.) Kunth.

Additional citations: BRAZIL: Minas Gerais: P. Clausen 15 (N), 38 [U. S. Nat. Herb. photo 5899] (N--photo, P), 182 (B, Br, N--photo, Z--photo), 267 (Br, N), 269 (S), s.n. [Brazil] (Br, Mi);

L. Riedel s.n. [S. da Piedade] (B--isotype, M--isotype, S--isotype). São Paulo: L. Riedel 1482 (B, Ut—348). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS BOREALIS Körn.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 508. 1863.

Nothing is known to me of this taxon. It is very possible that the binomial is one which Körnicke intended to use validly and later abandoned. Further examination of the Berlin herbarium material may reveal more on this matter. In the original publication (1863) the plant is said to be native to "Boreali-Americana", but there is no formal description. Possibly it is what we now know as Syngonanthus flavidulus (Michx.) Ruhl.

PAEPALANTHUS BRACHYPHYLLUS Ruhl.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 173, 175, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40. 1930; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Phytologia 3: 142 (1949) and 4: 136. 1952; Moldenke, Résumé 95 & 485. 1959.

This species was based by Ruhland (1903) on two collections: (1) Glaziou 5453 from dry campos on the summit of Itatiaia, Rio de Janeiro, and (2) Schwacke 13871 from moist places by brooks on the Morro de São Sebastião, Minas Gerais, Brazil, both deposited in the herbarium of the Botanisches Museum at Berlin, where the first-mentioned was photographed by Macbride as his type photograph number 10574. The species has been collected in anthesis in June and October. Ruhland (1903) cites only the two original collections and comments that "Species P. scandenti Ruhl., Bongardii Kunth etc. affinis, sed an eis capitulis minoribus, foliis brevibus, obtusis eorumque in caule dispositione differt".

Additional citations: BRAZIL: Minas Gerais: Schwacke 13871 (B--cotype). Rio de Janeiro: Glaziou 5453 [Macbride photos 10574] (B--cotype, N--photo of cotype, N--photo of cotype, W—photo of cotype, Z--cotype).

PAEPALANTHUS BRACHYPUS (Bong.) Kunth

Synonymy: Eriocaulon brachypus Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 622 & 646, pl. 6. 1831 [not E. brachypus Van Heurck & Muell.-Arg., 1870]. Paepalanthus brachypus Kunth apud Körn. in Mart., Fl. Bras. 3 (1): 322. 1863. Dupatya brachypus (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya brachypus Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 622 & 646, pl. 6. 1831; Bong., Ess. Monog. Erioc. 22 & 46--47, pl. 6. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 511, 516--517, 572, 576, 612, & 624. 1841; D. Dietr.,

Syn. Pl. 5: 261. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 274 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 322 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 877 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 189—191, [283], 285, & 289, fig. 25. 1903; Saunders, Ann. Bot. 39: 158, fig. 69. 1925; Alv. Silv., Fl. Mont. 1: 402. 1928; Stapf, Ind. Lond. 3: 90 (1930) and 4: 518. 1930; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 41, 51, & 52, fig. 19. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 877 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 10, 29, 33, & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Phytologia 4: 136. 1952; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 95, 279, 286, & 485. 1959; Moldenke, Résumé Suppl. 1: 19. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877 (1960) and 2: 401. 1960; Rennó, Levant. Herb. Inst. Agron. 69. 1960; Moldenke, Phytologia 18: 304. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148, 149, 159, 161, 163, 173, 174, 184, 186, 187, & 189. 1969.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: pl. 6. 1831; Bong., Ess. Monog. Erioc. pl. 6. 1831; Ruhl. in Engl., Pflanzenreich 13 (4-30): 190, fig. 25. 1903; Saunders, Ann. Bot. 39: 158, fig. 69. 1925; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 51, fig. 19. 1930.

The type of this species was collected by Ludwig Riedel (no. 1182) in sandy places near Cachoeira do Campo, Minas Gerais, Brazil, and is deposited in the Leningrad herbarium. Bongard's original description (1831) is "caulibus caespitosis simplicibus foliosis; foliis radicalibus linearibus pilosis; pedunculis pubescentibus vaginis glabriusculis. T. VI. Hab. in arenosis prope Cachoeira. Floret Decembri. ⊙." Ruhland (1903) cites only this original collection and Glaziou 19978, also from Minas Gerais. Silveira (1928) cites A. Silveira 485 from near Diamantina in the Serra da Raiz, Minas Gerais, collected in 1908.

The Eriocaulon brachypus Van Heurck & Muell.-Arg., referred to in the synonymy above, is a synonym of E. microcephalum H.B.K. The specific epithet of Dupatya brachypus is uppercased for some reason not obvious to me by Durand & Jackson (1902).

Recent collectors describe this plant as cespitose, the heads sordid-white, growing in sandy places, on dry campos, among low brush in wet sand and clay campos, and on the campos in areas of grassy meadows with adjacent sandy campos, at altitudes of 1300 to 1500 meters, flowering in January, March, and December. Material has been misidentified and distributed in herbaria as P. compactus Gardn.; in fact, the M. A. Chase 10418 is said to have been collected at the type locality of that species. The two taxa are certainly very closely related.

Additional citations: BRAZIL: Minas Gerais: M. A. Chase 10418 (Mi, W—1495695); Glaziou 19978 (B).